Response to Comments on Draft National Pollutant Discharge Elimination System (NPDES) Permit No. MA0004073 – Twin Rivers Technologies US Inc. – Weymouth Fore River and Town River Bay, MA.

Introduction:
In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the draft NPDES permit for Twin Rivers Technologies (MA0004073). The responses to comments explain and support the EPA determinations that form the basis of the final permit. The Twin Rivers Technologies draft permit public comment period began July 16, 2009 and ended August 14, 2009. Comments were received on the draft permit from Twin Rivers Technologies (the permittee) and the Protected Resources Division of the National Marine Fisheries Service (NMFS PRD).

The final permit is substantially identical to the draft permit that was available for public comment. Although EPA's knowledge of the facility has benefited from the various comments and additional information submitted, the information and arguments presented did not raise any substantial new questions concerning the permit. EPA did, however, make certain clarifications in response to comments. These improvements and changes are detailed in this document and reflected in the final permit. A summary of the changes made in the final permit are listed below. The analyses underlying these changes are explained in the responses to individual comments that follow.

Changes in Final Permit:

1. In Part I.A.2. the measurement frequency for flow and pH at Outfall 003 has been changed from once per week to once per month.

2. In Part I.B.6, the Benchmark Monitoring Schedule for data not exceeding benchmarks from the 2008 Multi-Sector General Permit was added.

3. In Part I.D.1.b, the requirement to operate the existing wet mechanical draft cooling tower with a recirculating volume of 5.5 MGD was replaced with a requirement to operate the tower to reduce the need for once-through cooling water withdrawal. The requirement to notify EPA and MassDEP of any change in the design or capacity of the wet mechanical draft cooling tower was removed.

4. In Part I.D.2, the permittee is required to provide a measurement of the opening size at the widest point and calculation or measurement of through-screen velocity to EPA and MassDEP prior to operation of any exclusion technology.

5. In Part I.E., the Ambient and Mixing Zone Temperature Monitoring study was modified. The modified study requires two transects with a total of nine (9) thermistors plus a single ambient monitoring location at various depths. A requirement to record temperatures at fifteen minute intervals was added.

6. In Part I.F.1., the duration of entrainment monitoring was limited to two years, and in Part I.F.3., the requirement to report results annually was modified to "following each year of the study."

7. Part I.F.4., allowing the permittee to request a reduction in the frequency of monitoring after two years was eliminated.

8. In Part I.F.2.a. a typographical error requiring the permittee to estimate the density of larvae in each sample by multiplying the number of larvae by the volume of water in the sample was changed to "by dividing the number of larvae by the volume of water in the sample."

Comments from Twin Rivers Technologies

A. Section A. Effluent Limitations and Monitoring Requirements

Comment A1. Twin Rivers Technologies (TRT) finds the limits and monitoring requirements acceptable with the exception of the Nitrogen and Total Recoverable Zinc reporting requirements. Neither Nitrogen nor Zinc is suspected to be issues for this discharge. The need for quarterly reporting in these constituents should be established through baseline testing outside the requirements of the Draft.

Response A1. The monitoring requirements for Nitrogen and Total Recoverable Zinc are based on the benchmark monitoring requirements of the 2008 Multi-Sector General Permit (MSGP), Section C, Subsection C3: Soaps, Detergents, Cosmetics, and Perfumes (SIC 2841-2844). The benchmark concentrations in footnotes 5 and 6 (page 3) are not effluent limitations, but rather an indication of the overall effectiveness of control measures implemented through the facility's Storm Water Pollution Prevention Plan (see Fact Sheet p.12). A benchmark exceedance will not result in a permit violation. Therefore, the Final Permit requires reporting quarterly monitoring results for both Nitrogen (nitrate plus nitrite) and Zinc.

Section 6.2.1.2 of the MSGP sets a benchmark monitoring schedule for both data exceeding benchmarks (included in Part I.B.6 of the Draft Permit) and data not exceeding benchmarks. EPA inadvertently excluded the schedule for data not exceeding benchmarks in the Draft Permit. Part I.B.6 of the Final Permit includes the following language:

a. *After collection of four (4) quarterly samples, if the average of the 4 monitoring values for either parameter does not exceed the benchmark, you have fulfilled your monitoring requirements for that parameter for the permit term. For averaging purposes, use a value of zero for any individual sample parameter which is determined to be less than the method detection limit. For sample values that fall between the method detection level and the quantitation limit (i.e.,*

confirmed detection but below the level that can be reliably quantified), use a value halfway between zero and the quantitation limit.

Comment A2. TRT finds the limits and monitoring requirements acceptable with the exception of the frequency of the monitoring requirements. TRT now conducts monthly sampling and reporting for this discharge and believes that this is appropriate. The monthly sampling results show a consistency of compliance. The increase to weekly sampling is possible but would require additional manpower for minimal benefit.

Response A2. EPA reviewed the monthly sampling results for flow and pH at Outfall 003 from June 2003 through March 2009 (summarized in Attachment B of the Fact Sheet). The facility never exceeded the 5 MGD flow limit nor the acceptable pH range (from 6.5 to 8.5 standard units). The facility never had a pH measurement below 6.6, and only one measurement of 8.5. In addition, currently only two of the existing four pumps are active, each with a design flow of 2.5 MGD. Thus, the facility cannot exceed the flow limit of 5 MGD with the active pumping capacity. Based on these results, EPA agrees that increased monitoring will provide minimal benefit. Therefore, the Final Permit has been changed to require monthly monitoring of flow rate and pH. See Response to Comment A3 for discussion of temperature monitoring.

Comment A3. The installation and continuous monitoring and recording again would provide minimal benefit. The monthly sampling results show a consistency of compliance. Additionally, in this case, installation of monitoring equipment may also be infeasible due to the location of the discharge and the affect tidal action has on it. TRT would suggest further discussion regarding this condition.

Response A3. The effluent temperature limit for Outfall 003 has been changed from a maximum daily limit based on the average of 2 grab samples collected 6 hours apart in the existing permit to an instantaneous maximum limit in the Final Permit. The Final Permit grants the facility a thermal variance under Section 316(a) of the Clean Water Act, which allows the permittee to exceed water quality standards during low tide when the discharge is directly to the tidal mudflats with no available dilution. The instantaneous maximum limit of 87˚F is based on the upper thermal requirements of mudflat species and is required to ensure protection of the balanced, indigenous population. A discharge in excess of 87˚F at low tide could potentially result in mortality for some species with lower thermal tolerances, such as the Atlantic silverside (See p. 14 of the Fact Sheet). An instantaneous limit monitored monthly, or even weekly, does not provide any assurance that the instantaneous limit has been consistently met. Therefore, a continuous temperature monitor must be installed at the facility. The permittee need not monitor at the outfall to demonstrate compliance, the monitor may be placed anywhere along the line leading to the outfall provided that the monitor is located after the cooling water has passed through the facility's non-contact cooling processes and before comingling with the receiving water.

B. Section B. Best Technology Available

Comment B1. TRT operates a wet mechanical draft cooling tower with a maximum recirculating rate of 5.5 MGD. This system provides cooling to parts of the operations independent of the CWIS system. Requiring TRT to continuously operate this system at full rate is impractical and unnecessary and would result in increased electrical, water, and treatment chemical use without any load reduction on the operations that depend on the CWIS system. This system is hard piped to production functions not served by the cooling water intake. These functions have varying operations that require different cooling capacities. To require 100% capacity utilization at all times is impractical and inefficient.

Response B1. EPA did not intend to require the facility to continuously operate the closed-cycle cooling system at full rate. The purpose of this requirement was to ensure that the facility not use river water in the once-through system for those processes that can be supplied by the closed cycle cooling system. Part I.D.1.b of the Draft Permit also required the permittee to notify EPA and MassDEP of any change in the design or capacity of the cooling tower. This notification is unnecessary because Part I.D.3. already requires the permittee to notify the agencies of changes to the CWIS. Part I.D.1.b. has been rewritten as follows:

The permittee shall continue to operate the existing wet mechanical draft cooling towers with make-up water supplied by municipal sources to reduce the need for once-through cooling water withdrawal from the River.

Comment B2. The requirement of using the time period between February 1st and June 30th is impractical. This requirement effectively limits shutdown periods to May and June only. Maintenance outages are scheduled to coincide with production in most cases but are also limited by the type of product that is processed at this location and its sensitivity to atmospheric conditions. Much of the product is temperature sensitive and solidifies if temperatures are below 60 degrees F. If the product solidifies, pipelines, pumps, and other process equipment "seize up" with product the consistency of bar soap clogging the internals.

Response B2: Part I.D.1.c required that the facility schedule maintenance outages between February 15th and June 30th *to the maximum extent practicable* (emphasis added). EPA acknowledges the production and operational considerations associated with a shutdown, including peak production periods and temperature sensitivities of the manufactured products. The time period specified in the Draft Permit coincides with peak egg and larval abundance for a number of species, including winter flounder and rainbow smelt. The intention was to further reduce the potential for entrainment by scheduling required maintenance shutdowns during peak entrainment periods. However, scheduling shutdowns outside of the specified period because of operational or production considerations will not result in a permit violation. The permittee is required, in this case, to report scheduled outages and describe why it was not practicable for the

outage to occur between February 15 and June 30. No change has been made to the Final Permit.

Comment B3. TRT believes that BTA will be attainable by replacing the existing screens with screens that meet the 10 mm opening size.

Response B3: Part I.D.2 of the Final Permit requires the facility to install and operate an exclusion technology with an opening size no more than 10 mm and through-screen velocity no greater than 0.5 fps. The Final Permit specifies that the opening size shall be measured at the widest point and a measurement of the opening size shall be provided to EPA and MassDEP prior to operation. If replacing the existing screens with 10 mm screens will meet the through-screen velocity requirement, the facility will be in compliance with the Final Permit.

C. Section E. Ambient and Mixing Zone Temperature Monitoring

Comment C1. TRT believes that the temperature monitoring in the mixing zone is unnecessary since the Draft sets strict thermal limits at the discharge location (003), which are protective of the receiving waters.

Response C1: The Massachusetts Water Quality Standards for Class SB waters at 314 CMR 4.05(4)(b)(2) require that in-stream temperatures shall not exceed 85˚F, nor a maximum daily mean of 80˚F, and the rise in temperature due to a discharge shall not exceed 1.5˚F during the summer months (July through September), nor 4˚F during the winter months (October through June).

The instantaneous maximum daily temperature limit of 87˚F at the discharge has the potential to exceed water quality standards. During low tide, when no dilution is available, the permittee is granted a thermal variance under Section 316(a) which allows water quality standards to be exceeded provided that the discharge remains protective of a balanced, indigenous population. In this case, the instantaneous maximum limit is within the thermal tolerance of species associated with tidal mudflats and will be protective.

However, when Outfall 003 is submerged, the permittee must meet in-stream water quality standards within an acceptable mixing zone, as determined by MassDEP in accordance with the *Implementation Policy for Mixing Zones* (January 8, 1993). Massachusetts Water Quality Standards at 314 CMR 4.03(2) require that the mixing zones (i) be limited to an area or volume as small as feasible, (ii) shall not interfere with the migration or free movement of fish or other aquatic life, and (iii) shall not create nuisance conditions, accumulate pollutants in sediments or biota in toxic amounts or otherwise diminish the existing or designated uses of the segment disproportionately.

Because the instantaneous maximum limit exceeds water quality standards and a mixing zone is required, in-stream monitoring is necessary to ensure that the water quality standards for both temperature (314 CMR 4.05(4)(b)(2)) and mixing zones (314 CMR

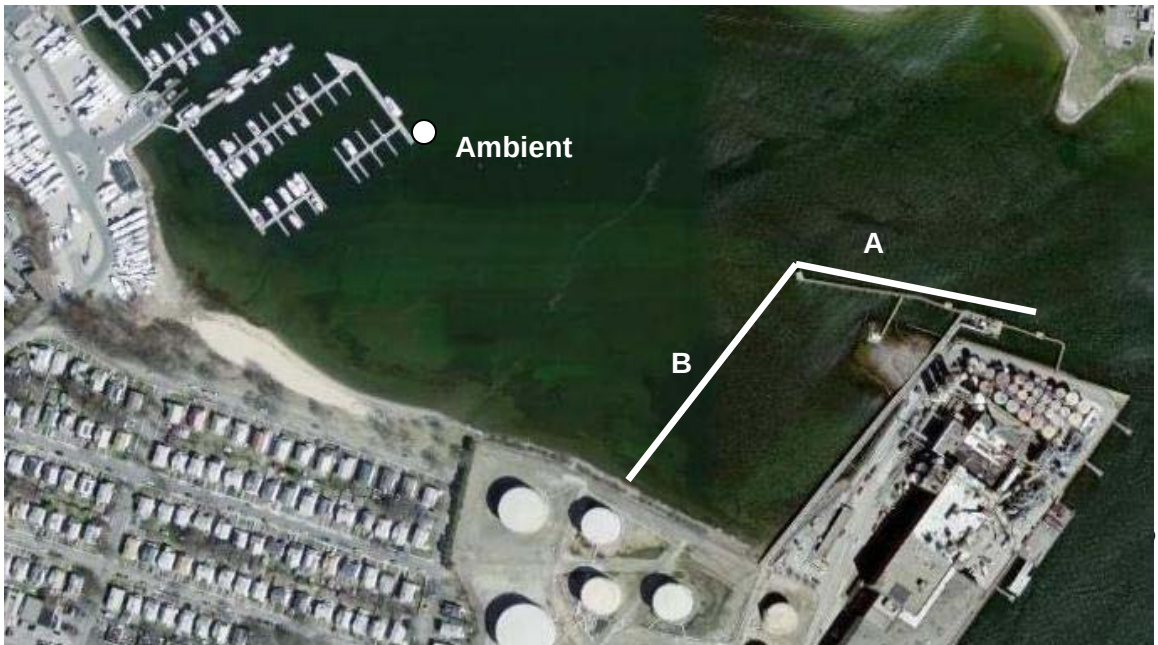
4.03(2)) are met. The Final Permit requires a limited, two-week temperature monitoring study to ensure that the mixing zone is sufficiently small, allows free movement for fish and other aquatic life, and supports existing and designated uses of Class SB waters, including, among other uses, as a habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation.

Comment C2. The requirement for the study should be used to set the strict limits on discharge, which in this case are already established, making the study unnecessary and burdensome. The regulations at 40 CFR 125.73 discuss the applicant performing studies to prove that permit parameters could be eased and still be protective of the environment. Since TRT is not requesting that those parameters be changed, the regulations do not explicitly support studies after the permit issues.

Response C2: As stated in Response to Comment C1, the purpose of the thermal monitoring study is to ensure that water quality standards for both temperature and mixing zones are met. The permittee is correct in that regulations at 40 CFR 125.73 are used to determine alternative effluent limitations under Section 316(a) of the Clean Water Act (CWA). However, the required thermal monitoring study will not be used to determine thermal effluent limitations, but to ensure that the instantaneous maximum temperature limit will meet water quality standards when outfall 003 is submerged consistent with the requirements of the State's mixing zone policy. EPA is given broad discretion under the authority of Sections 308(a) and 402(a)(2) of the CWA and consistent with 40 CFR §§ 122.41(j), 122.43(a), 122.44(i) and 122.48 to require monitoring on a case by case basis to, among other things, provide for and assure compliance with permit limitations, all applicable requirements of the CWA and regulations, including state water quality standards.

EPA, in consideration of the cost and effort of the required study, has limited the spatial scale of the study and altered monitoring locations to more accessible areas compared to the proposed study in the Draft Permit (see Figure 1).

Figure 1. Approximate Locations for Transects of Thermistors in the Ambient Temperature and Mixing Zone Study.



Four thermistors approximately equally spaced along a transect that runs from the westernmost end of the pier to the opposite shoreline adjacent to the property. Thermistors at this location may be exposed at some tidal ranges.

One thermistor at one meter depth at the eastern end of one of the boat docks located closest to the discharge point at the Bay Pointe Marina as a measure of ambient river temperature.

In the Final Permit, the Ambient and Mixing Zone Temperature Monitoring section of the Final Permit (Part I.E) has been revised as follows:

The permittee shall collect temperature readings from the Town River Bay during seven consecutive days in March and seven consecutive days of August using an array of thermistors at the locations and depths (also see Permit Attachment A):

- *Five thermistors at one meter depth approximately equally spaced along a transect adjacent to the pier north of the property. The first thermistor shall be located at the westernmost end of the pier and fifth thermistor shall be located at the northwest corner of the dock.*
- *Four thermistors approximately equally spaced along a transect that runs from the westernmost end of the pier to the opposite shoreline adjacent to the property. Thermistors at this location may be exposed at some tidal ranges.*
- *One thermistor at one meter depth at the eastern end of one of the boat docks located closest to the discharge point at the Bay Pointe Marina as a measure of ambient river temperature.*

Each thermistor shall be equipped with a data logging device to allow the development of a continuous data record with temperatures recorded at 15-minute intervals. The permittee is solely responsible for gaining all permits and authorizations necessary for the placement of the thermistors in the Town River Bay. Samples must be collected during times that the facility is discharging from Outfall 003. The results of this study shall be submitted to EPA and MassDEP as part of the subsequent monthly DMR submission.

D. Section F. Entrainment Sampling

Comment D1. TRT has conceded to decrease the screen size of the intake screens at the intake of the CWIS so as to meet BTA and based on the CWIS Study meets BTA for the intake velocity of 0.5 fps. Entrainment sampling therefore is unnecessary and burdensome.

Response D1: Entrainment sampling has never been performed at this facility and therefore EPA seeks information which will be used characterize the impacts associated with the entrainment of aquatic organisms due to the facility's withdrawal of cooling water. Changes to the intake structure in compliance with the BTA requirements of the Final Permit (mesh size and through-screen velocity) are designed to reduce impingement, but do not effectively target entrainment reductions. Information obtained from the entrainment sampling may be used in future permitting actions, if warranted.

However, in response to the permittee's comment, EPA has limited entrainment sampling to two years. See Final Permit Part I.F.1.

Comment from the Protected Resources Division of NOAA NMFS Northeast Region

The receiving waters for the discharge are the Weymouth Fore River and Town River Bay, which is located on the southern edge of Boston Harbor. No listed species under NMFS jurisdiction will occur in the Weymouth Fore River. As such, the remainder of this comment will address the presence of listed species in the Town River Bay.

Three species of federally threatened or endangered sea turtles and three species of endangered whales may be found in Massachusetts waters. The sea turtles in Massachusetts nearshore waters are typically small juveniles with the most abundance being the federally threatened loggerhead (*Caretta caretta*) followed by the federally endangered Kemp's ridley (*Lepidochelys kempi*). Loggerheads and Kemp's ridleys have been documented in waters as cold as 11C, but generally migrate northward when water temperatures exceed 16C. These species are typically present in Massachusetts waters from June through November. Federally endangered leatherback sea turtles (*Dermochelys coriacea*) are located in New England waters during the warmer months as well. While leatherbacks are predominantly pelagic, they may occur close to shore, especially when pursuing their preferred jellyfish prey. Green sea turtles (*Chelonia mydas*) may also occur sporadically in New England waters, and any occurrence in Massachusetts waters is likely to be rare. Sea turtles are known to occur on Stellwagen Bank and in Massachusetts Bay. While no surveys for sea turtles have been conducted in Boston Harbor, suitable forage and habitat exists in this area. As Town River Bay is on the southern edge of Boston Harbor, it is likely that sea turtles occasionally are present in Town River Bay and therefore, may occasionally be present in Town River Bay.

Federally endangered North Atlantic right whales (*Eubalaena glacialis*) and humpback whales (*Megaptera novaeangliae*) are also found seasonally in Massachusetts waters. North Atlantic right whales have been documented in the nearshore waters of Massachusetts from December through June. Humpback whales feed during the spring, summer, and fall over a range that encompasses the eastern coast of the United States, including Massachusetts Bay. While these whale species are not considered residents of the Boston Harbor area, transients occasionally enter the area as they complete seasonal migrations in nearby Massachusetts Bay. For example, in April 1996 a right whale was documented in Boston Harbor and in the fall of 2000, a humpback whale was documented in Boston Harbor. Fin (*Balaenoptera physalus*), Sei (*Balaenoptera borealis*), and Sperm (*Physter macrocephalus*) whales are also seasonally present in New England waters but are typically found in deeper offshore waters and are not likely to occur in Boston Harbor. Based on the available information, and the shallow depths of the Bay (i.e., 10 feet), listed whales are likely to be rare within Town River Bay.

As listed species of sea turtles are likely to be present in the action area of this project, a consultation, pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, may be necessary. If the proposed project has the potential to affect listed species and it is being approved, permitted, funded, or carried out by a Federal agency, the lead Federal agency, or their designated non-Federal representative, is responsible for determining whether the proposed action is likely to affect listed species.

Response to Comment from NMFS PRD. EPA contacted NMFS to discuss this consultation on September 9, 2009. On September 10, 2009, EPA received the following response: After reviewing the fact sheet and your description of the facility's intake and discharges, and the fact that only rare, transient sea turtles may occasionally occur in the Town River Bay, NMFS concurs with your assessment that the facility's intake and discharges will not adversely affect any listed species of sea turtles. As such, no further consultation is needed with NMFS.